

16X10X40
CD-RW Drive

USER'S GUIDE

16x10x40 CD ReWritable User's Guide

Dear Customer:

Congratulations on the purchase of your 16x10x40 CD-Rewritable drive. We can assure you that it is made from new state-of-the-art chipsets and components. Your product has also gone through the most rigorous test and quality assurance procedures in the industry.

We all want to express our sincere gratitude for your decision to purchase our product. Our commitment to you is to provide a product that is easy to install and use.

We began with one PCMCIA sound product in 1993. Since then, our company has grown and now offers more than thirty products in the computer market, including CD-ROM drives, 3D stereo sound cards, wave table sound cards, PCMCIA devices, accelerated 3D graphics cards, CD ReWritable drives, modems, scanners, USB cards, digital cameras, DVD drives and even MP3 playback devices. In the coming months we will introduce products using wireless technology, integrated multimedia solutions with video capture capabilities, video conferencing, and many other exciting technologies.

We hope you enjoy using your new product, and look forward to earning your business in the coming years.

***16x10x40 CD ReWritable
User's Guide***

**CLASS 1 LASER PRODUCT
APPAREIL A LASER DE CLASSE 1
LASER KLASSE 1
LUOKAN 1 LASERLAITE
PRODUIT LASER
CATEGORIE 1**

DANGER INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
VORSICHT INSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
ATTENTION RADIATION DU FAISCEAU LASER INVISIBLE EN CAS D'OUVERTURE. EVITER TOUTE EXPOSITION AUX RAYONS.

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FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

FCC Warning Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can emit radio frequency energy and, if not installed or used in accordance with the instructions, may cause interference to radio communications. However, television reception interference can be determined by turning the equipment off and on. The user is encouraged to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FOR EUROPE



"The drive is in conformity with the EMC directive and low-voltage directive."

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INTRODUCTION

Features

Congratulations on your purchase of the 16x10x40 CD-Rewriteable drive. We are sure that you will enjoy this product in the years to come. The CD-Rewriteable is a high performance IDE interface CD-RW drive, implementing the ATAPI IDE standard interface with 40X (read), 16X (write) and 10X (re-write).

The bundled CD-RW mastering software gives you the ability to archive, distribute or create your own CD's (CD-ROM/XA), CD Bridge, Multi-session CD, CD-I, and CD-DA from your computer's desktop.

The CD-Rewritable drive can automatically recognise the media placed in the drive, whether a CD, a CD-R or a CD-RW disc. The application included allows you to read and pre-master CD-R or CD-RW discs, plus file system (drag and drop) for archiving, data interchange and back up, on both CD-R and CD-RW discs.

User friendliness is further enhanced as the CD-Rewritable can be used as a PnP (Plug and Play) CD-ROM drive for all PC operating systems, such as Windows 98, Windows 95, Windows 2000, and Windows NT. You can use the two quick select buttons to manually control music CDs without running any software programs. A standard ANSI MMC (multimedia Command) set is also featured.

The CD-Rewritable drive supporting all writing modes extends operational versatility and CD formats (CD-DA, CD-ROM etc., include CD-UDF as standardized by OSTA). Furthermore, the erase function is supported for CD-RW discs allowing repetitive use.

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Specifications

Interface Type:	Internal E-IDE (Enhanced IDE) (conforms to ATAPI Version 2.6).
Writing Speed	1x, 2x, 4x, 6x, 8x, 10x, 12x, 14x, 16x (CD-R) 4x, 8x, 10x (CD-RW)
Reading Speed	Max. 40x (CAV)
Loading Method	Tray
Data Transfer Rate:	1607MB.sec. (Max.) (DMA2 or PIO4)
Average Access Time:	120msec.
Writing mode	Disc. At Once, Session At Once, Track At Once, Multi-session, Packet Write
Writing format	CD-DA, CD-ROM, CD-ROM XA, CD Extra, CD-I, Mixed Mode CD, Video CD, Photo CD, CD TEXT, Bootable CD
Power requirements	DC +5V/+12V
Power Consumption	10W
Installation	Horizontal/Vertical
Dimensions (WxDxH)	5.7" x 7.6" x 1.6" (146.0 x 198.0 x 41.3mm)
Weight	Less than 1.2 kg (2.6lb)
Temperature	Operating 5°C-40°C, Non Operating -30°C-65°C
Humidity	Operating 5%-90%, Non Operating 5%-95% RH

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Package Contents

The 16x10x40 CD-Rewritable package contains the following items:

- 16x10x40 CD-Rewritable Drive.
- User's Guide (This Document)
- Registration Card
- CD Mastering (burning) software.

System Requirements

For IBM compatible PCs, the system requirements are as follows:

Operating System:

- Windows 95 (OSR2 or later)
- Windows 98
- Windows NT Workstation 4.0 (SP5 +)
- Windows 2000 (Professional)

Hardware:

- IBM PC/AT Compatible
- 1 +12v/+5V Power supply connector
- 1 E-IDE interface connector

CPU:

- MMX Pentium 200MHz or faster
- (Pentium II 300 MHz or faster recommended)

RAM:

- Minimum 64MB

Hard Disk:

- Over 1GB (Minimum 150MB free disk space)

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INSTALLATION

Handling Static-Sensitive Devices

The 16x10x40 CD-Rewritable drive, like all electronic equipment, is static sensitive. Please take the proper precautions when handling the drive.

Avoid touching the IDE connector pins as well as the audio connector pins and the jumper pins.

Keep the drive in its conductive wrapping until you are ready to install the drive in your computer.

Host Interface Connections

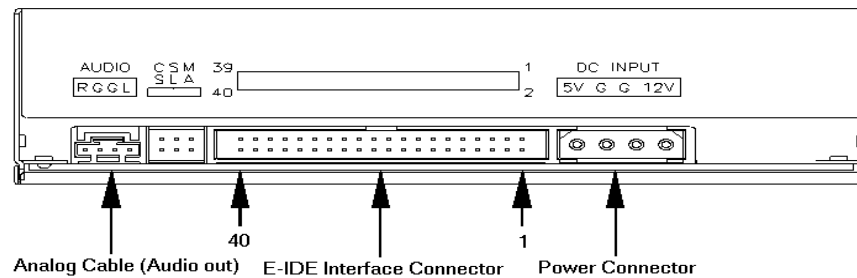
It is recommended that you use separate IDE ports for your hard drive and your drive. The drive should be connected to a Secondary IDE controller port as "Master". This will ensure your hard drive's performance and speed are not affected by having the drive on the same cable. Additionally, if you have a CD-ROM drive or a CD-R drive, you should attach it to the Primary IDE controller port as a slave drive.

Connect the internal IDE flat cable to the IDE interface card of your host. Connect the other end to one of the IDE connectors at the rear of the CD-Rewritable drive.

Hardware Installation

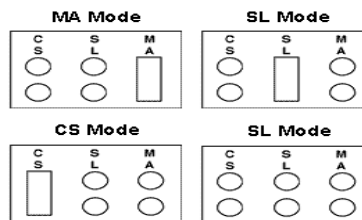
The following diagram shows you the rear view of your CD-Rewritable drive. Familiarize yourself with the drive before installing the unit into your computer. Locate where the drive will be connected first and then make sure you have all the necessary parts for the connection.

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Setting-up the "Mode Select" Jumper

On the rear panel of the CD-Rewritable drive, you will find three pairs of jumpers, CS (CSEL), SL (Slave) and MA (Master). Use the jumper cap to set the device to CS, SL or MA mode corresponding to your PC configuration (See Figure below). The default setting is "Slave" mode. Improper or conflicting setting, will cause the unit to not be detected by your computer.



Connecting to a Primary IDE Controller

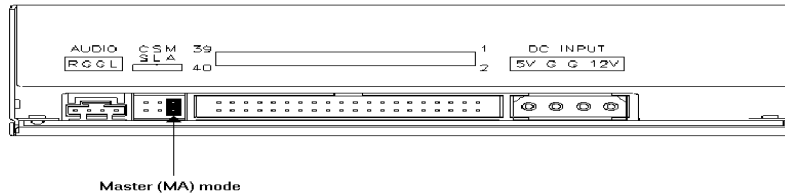
There should be at least one IDE controller (or card) on the PC motherboard. This IDE controller supports two devices, one for the hard disk (Master), and the other for the 2nd hard disk or a CD-ROM drive. The hard disk should be connected to this primary IDE (Master mode) controller, as the PC needs to use the hard disk to boot up the system (unless you are using a SCSI hard drive). Make sure the CD Rewritable drive is connected to the Primary IDE Port as the 2nd device, which is referred to as the "Slave". Make sure the Mode Select Jumper is set to the SL (Slave) position in order to be used as the 2nd device on the Primary IDE Controller.

Connecting a Secondary IDE controller

If the PC is equipped with a 2nd IDE controller (or card) on the motherboard, each device connected to this controller should be set to either MA (Master) or SL (Slave) mode. Please set the CD-Rewritable drive to MA (Master) mode. If there is another

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device such as a CD-ROM connected to the secondary IDE controller, make sure it is set to the "Slave" mode. You may have to change the jumper settings on this CD-ROM. By setting the CD-Rewritable drive to the "Master" position, you will get maximum performance.



Attaching your CD-Rewritable Drive to your computer

Note: Please follow these steps carefully when installing the drive.

1 Turn off the PC.

Make sure there is no power going to your computer prior to beginning the Hardware Installation. This is to help prevent harm to yourself as well as the risk of damage to your computer.

2 Remove the computer's cover.

Please refer to your computer's User's Guide on how to remove the computer's cover.

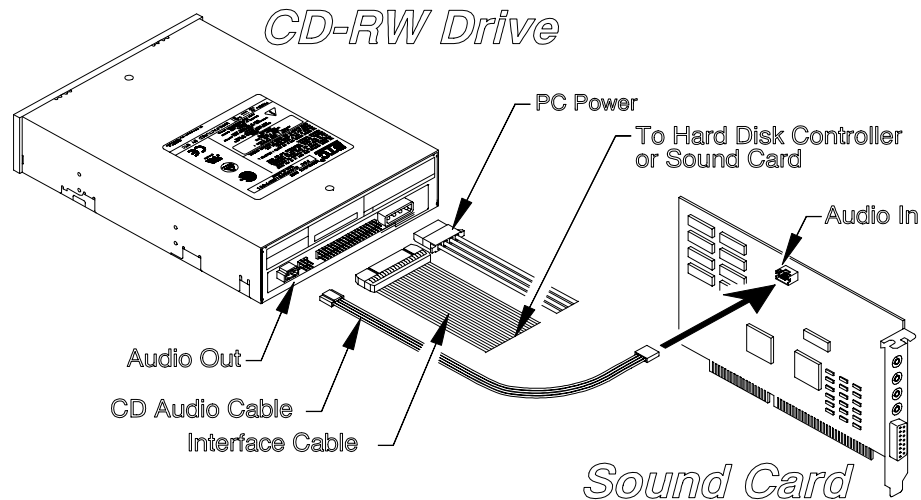
3 Locate an available 5 ¼ drive bay.

Locate an empty 5 ¼ drive bay within your computer. It may be necessary to remove a square iron plate. Please refer to your computer's User's Guide for assistance.

4 Slide the CD-Rewritable drive into the empty bay.

5 Connect the power supply cable into the DC input connector on the back of your drive.

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- 6** Connect the IDE cable into the E-IDE Interface connector on the back of your drive.

Connect the 40-pin IDE cable into the CD-Rewritable drive's E-IDE connector. Make sure to align the redlined edge of cable with Pin-1 of the IDE connector.

- 7** Connect the Analog cable from your Sound Card to the Audio out connector on your (If necessary).

If you have a sound card or an audio interface card, use the audio cable to connect from the sound card audio port to the CD-Rewritable drive's Analog Audio out connector located on the back panel.

- 8** Secure the CD-Rewritable drive against the chassis of your computer.

Secure the drive using four screws included in the accessory pack.

- 9** Re-attach the computer's cover.

- 10** Reconnect all power cords to the computer.

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Driver Installation

Windows 95/98/ME/2000 Installation

There is no need to install any CD-RW device driver under Windows 95 / 98 / ME / NT and 2000. After completing the hardware installation section of this manual, please follow the steps below:

- 1 Turn on your PC to start-up your Windows 95 / 98 / ME/ 2000 Operating System.**

Windows 95/98/ME/2000 will automatically detect the new drive and load the appropriate drivers for your CD-Rewritable drive.

Note: Refer to the troubleshooting section of this manual if Windows does not automatically detect your CD-Rewritable drive.

DOS or Windows 3.1x

Note: Dos and Windows 3.X is not supported as a CD-Rewritable drive. You can **“ONLY”** use it as a regular CD-ROM drive. Visit our website for Dos / Windows 3.X drivers and information.

Windows NT 4.0 Installation

- 1 Power on your PC.**
- 2 Log into Windows NT.**
- 3 Once in the desktop, click on the “Start” button > “Settings” > “Control Panel” > “Devices”.**

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4 Select "ATAPI" from the list and click on the "Start-up" button.

5 When you get the start-up screen, check "Boot" then click The "OK" button.

6 Repeat the same procedure with "CD-ROM" (steps 4 and 5).

7 Close the "Devices" screen and click on the "Start" button > "Shut Down" and restart the computer.

Software Description

The bundled mastering software gives you the complete solution for making CDs right from your desktop. Nero-Burning ROM, allows you to copy files from your computer to a recordable compact disc (Nero-Burning ROM uses a special write-once media that provides permanent data storage in a format that is readable on virtually all CD-Recordable (CD-R) and CD-ROM drives. In addition, the audio CDs you create with your CD recorder can be played in your home or car CD player. CD-RW media allows you to record and erase data on the CD, just like a floppy disk. With Nero-Burning ROM, you can:

- Burn disk images.
- Archive data.
- Back up a hard drive.
- Make CD boot disks.
- Create DOS/MAC Hybrid discs (great for cross platform software developers)
- Create UDF or UDF/ISO file system discs.
- Mixed mode CDs and many other features.

Formats Supported

Nero-Burning ROM supports the following formats:

- CD-ROM
 - Compact Disc-Read Only Memory. A standard for CDs used as a digital memory medium for personal computers. The specifications for CD-ROM were first defined in the Yellow Book (see Glossary for information).
- CD-ROM XA

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- XA stands for Extended Architecture. CD-ROM XA is an extension of the Yellow Book standard (see Glossary for information), generally consistent with the ISO 9660 logical format but designed to add better audio and video capabilities so that CD-ROM can more easily be used for multimedia applications. CD-ROM XA is also the physical format for Photo CD discs.
- CD-DA
 - Compact Disc-Digital Audio. Jointly developed by Philips and Sony and launched in October 1982, CD-DA was the first incarnation of the compact disc, used to digitally record and play back music at unprecedented quality. The standard under which CD-DA discs are recorded is known as the Red Book (see Glossary for information).
- CD Extra
 - A multisession CD containing audio tracks in the first session, and one CD-ROM XA data track in the second session. Additional characteristics are defined in the Blue Book standard (see Glossary for information).
- Mixed-Mode
 - A CD including both computer data and CD-DA tracks in a single session. The data is all contained in Track 1, and the audio in one or more following tracks.

Nero-Burning ROM installation

Follow the installation instructions carefully and step by step. If you encounter a problem, refer to the troubleshooting section on this manual.

1. Power on your computer.
2. Boot into Windows.
3. Insert the Nero-Burning ROM installation CD into your CD-ROM drive.
4. The CD will automatically run and the installation program will guide you through the entire installation process.

Reboot your computer at the end of the installation.

Note: If the installation program does not launch automatically, follow these steps:

1. Click on the "Start" button on the task bar and select "Run".
2. From the command prompt, type D:\Install.exe (Where D:\ is your CD-ROM drive).
3. The installation program will guide you through the entire installation.

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NERO-BURNING ROM

Nero is a very professional package that gives you many features not found in other recording software packages. In the following paragraphs, you'll be introduced to the Nero-Burning ROM interface as well as step by step instructions on how to record CD-R / CD-RW media.

The software has extensive on-line help on all of its features and other general information. If you are looking for information, click on "Help" within the Nero-Burning ROM program and you will find a big variety of topics, including how to guides.

Before You Begin

Auto Insert Notification must be turned off before you begin. Failure to do so may result in problematic behaviour, such as system hangs and loss of data.

Turn off Auto Insert Notification for every CD drive on your IDE bus, including the CD recorder itself.

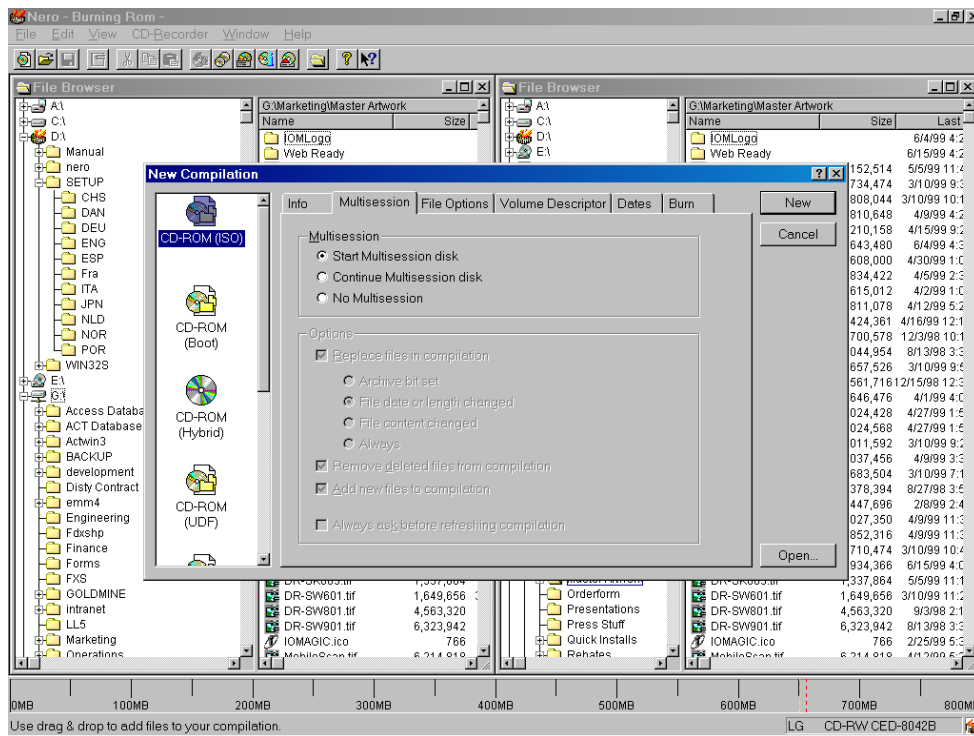
To turn off the Auto Insert Notification, follow these steps:

1. Right-click on the **My Computer** icon on the desktop.
2. Select **Properties** from the menu. The System Properties dialog box opens.
3. Click on the **Device Manager** tab.
4. Click on the plus sign next to the CD-ROM icon until you see the name of your CD recorder. Select it.
5. Click on the **Properties** button. The Properties dialog box for your drive opens.
6. Click on the **Settings** tab.
7. Deselect **Auto insert notification**.
8. Click on **OK** to close the Properties dialog box.
9. Click on **OK** to close the Systems Properties dialog box.
10. Restart your system as prompted.

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Nero-Burning ROM interface

This is the screen that you'll get when you first start Nero-Burn ROM.



From here, you'll be able to do the following:

- Burn disc Images
- Make CD Boot Discs
- Create DOS/MAC Hybrid discs (great for cross platform software developers)
- Create UDF or UDF/ISO file system discs
- Audio CDs (with critical sound filters)
- Mixed-Mode CDs
- Support a wide range of CD-Recorder Drives
- CD to CD Copying
- Files/Directories from HD to Disc Image/CD
- Overburning

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How you use Nero to create and record a CD-ROM (ISO)

We will leave all the options with their default settings. For detailed information, please refer to the Reference Chapter in the manual. The manual is on the Nero-CD in the form of an Acrobat document.

1. Click on the CD-ROM (ISO) icon in the New Compilation dialog window which opens after you start Nero. If you have already opened Nero, you can reach this dialog window through the icon for "New Compilation".
2. By opening the property page File Options you can switch between Mode 1 and Mode2/XA. If these settings appear dimmed/disabled, then these settings can't be modified right now. This might for example be the case if you have created an ISO CD Mode 1 and want to continue it using Mode 2. A CD, which has been recorded with different ISO or sector formats, might be unreadable!
3. Now click on the "New" button at the right.
4. The corresponding blank compilation window for CD-ROM opens. Using drag & drop, compile the files for the CD by clicking on the desired files in the File Browser with the mouse and then dragging them into the compilation window.
5. If the File Browser has not yet been opened, you can do that now by entering the VIEW > New File Browser command or by clicking on the File Browser icon.
6. Now open the **Write** dialog. The easiest way to do this is to click on the Write CD icon in the toolbar. You will then go to the Write CD dialog box, which will undoubtedly look familiar to you: it is the same box which you saw for the creation of a new compilation, only now the **Burn** property button is shown on the top.
7. You will see several boxes, of which some have already been selected. All of the preferences may now be examined and changed if necessary.
8. Note: If you wish to create a CD-ROM as a single session, you must click on the Finalize CD box. Do not click this box for a session of a multi-session CD, unless it is the last session. The CD is write-protected after this. Now you may confirm by clicking on the Write button. All of the selected steps will now be carried out in sequence including the burn process. So that you can follow exactly what is happening, a status window is displayed in which the individual steps are listed.
9. As a last step, you will see a message like "burn process was successful with 2x(300 KB/s)".
10. Finally, the CD will be ejected.
11. You may now check to see for yourself what was written onto your new CD by re-inserting the CD and clicking on the CD info icon.

How you use Nero to create and record an Audio CD

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To write your own Audio CD, you can choose between two methods:

1. The first one Compiling .CDA audio files on-the-fly allows you to extract audio files (.cda) on-the-fly from several CDs, without having to save them first on your hard disc. This method requires **Track-at-Once recording mode**. This means that you will not be able to make use of some features of your CD recorder (e.g. variable pause length, CD Text or index setting) since such features are only available in disc-at-once mode. The reason why you are able to burn such a compilation only in track-at-once mode, is that during the writing process, you may have e.g. to insert several source CDs in your CD recorder if the selected audio tracks come from different CDs. This means that the CD recorder would have "to wait" before writing the next track: you would get then a buffer underrun and the CD wouldn't be readable.
2. The second one Compiling .Wav files allows you to extract audio files from several CDs but you will have first to save them as .wav files on your hard disc. This method requires to have enough space on your hard disc since about 10 MB are needed to save one minute of music! Once the files have been saved on your hard disc, you will be able to write your audio compilation in **Disc-at-Once mode**. Using the Disc-at-Once recording mode, you will be able to make use of features such as variable pause length settings, index setting.... etc.

Writing mode: Track-at-Once

We will leave all the options with their default settings. For detailed information, please refer to the Reference Chapter in the Nero-Burning ROM's manual. Follow carefully the instructions.

1. Click on the Audio-CD icon in the New Compilation dialog window, which opens after you start Nero. If you have already opened Nero, you can reach this dialog window through the icon for "New Compilation".
2. Now click on the new button at the right. The corresponding blank compilation window for Audio CD opens.
3. If the File Browser has not yet been opened, you can do that now by entering the VIEW > New File Browser command or by clicking on the File Browser icon.
4. Insert in your drive the first CD you want to extract audio tracks from.
5. In the Nero file browser or in the Explorer click on the drive letter corresponding to the drive you insert the original CD in. The contents of your CD will be displayed.
6. Using drag & drop, compile the files by clicking on the desired files with the mouse and then dragging them into the audio compilation window.

Note: By compiling the selected audio tracks, Nero will analyse the track's

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information. You will be asked to give a name to each CD you want to extract audio tracks from.

7. If you want to extract audio files from a second CD, just insert now the second CD and compile the files in the same way you did it in step 6. If the first CD you have inserted was the only CD you wanted to extract files from, just continue with step 8.
8. Once you have compiled all audio data, open the Write CD dialog. The easiest way to do this is to click on the Write CD icon in the toolbar. You will then go to the Write CD dialog box, which will undoubtedly look familiar to you: it is the same box which you saw for the creation of a new compilation, only now the Burn property sheet is shown on the top.
9. You will see several boxes, of which some have already been selected. All of the preferences may now be examined and changed if necessary.

Important: Audio data that have been compiled on-the-fly without being first saved as wave files, can only be written in track-at-once mode. This means that you will not be able to make use of some features of your CD recorder (e.g. CD Text, variable pause length, or index setting) since such features are only available in disc-at-once mode.

10. Confirm by clicking on Write. If the compiled audio tracks have been extracted from several CDs, a message will be displayed during the burn process asking you to insert the CD corresponding to the track Nero is ready to write.
11. Finally, the CD will be ejected.
12. You may now check to see for yourself what was written onto your new CD by re-inserting the CD and clicking on the CD info icon.

Important: if your audio CD contains crackling noises or sounds strangely distorted, you have most likely trouble with the so-called "Audio Jitter". These problems are case by hardware failures to read audio data correctly. Please refer to "Checking the audio features of your CD-ROM drive and CD ROM-Read speed settings".

Writing mode: Disc-at-Once

We will leave all the options with their default settings. For detailed information, please refer to the Reference Chapter in the Nero-Burning ROM manual. Follow carefully the instructions.

1. If the audio tracks you want to write to a CD are not in a Wav. Format, please save them first into this format (see Saving audio tracks).
2. Click on the Audio-CD icon in the New Compilation dialog window, which opens after you start Nero. If you have already opened Nero, you can reach this dialog window through the icon for "New Compilation". On the property sheets, the Audio-CD card is on the top.

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3. Now click on the "New" button at the right.
4. The corresponding blank compilation window for Audio CD opens. If the File Browser has not yet been opened, you can do that now by entering the VIEW > New File Browser command or by clicking on the File Browser icon.
5. Using drag & drop, compile the files for the Audio CD by clicking on the desired files in the File Browser with the mouse and then dragging them into the compilation window.
6. Now open the Write CD dialog. The easiest way to do this is to click on the Write CD icon in the toolbar. You will then go to the Write CD dialog box, which will undoubtedly look familiar to you: it is the same box which you saw for the creation of a new compilation, only now the Burn property sheet is shown on the top.
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8. Confirm by clicking on Write.
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Duplicating a CD

You can choose between two methods if you want to copy a CD.

1. **The image copy:** The original CD will be read from the recorder and Nero will then create and save an image file, with the contents of your CD, to e.g. your hard disk. In a third step, Nero writes the image file onto a blank CD-R / CD-RW.
2. **The copy on-the-fly:** Nero will read directly from your CD-ROM drive and write to your recorder, without creating an image file on your hard disk

It's hard to give general advice on when to use "On The Fly" and when to use "Image Copy". The following list can give you some hints:

Choose "Image Copy" if you:

1. Want the best possible reproduction (especially concerning audio tracks)
2. Have enough time for an image copy which takes somewhat longer than an "On The Fly" copy.
3. Have enough free space on a hard disk to store the CD image (you will possibly need several hundred megabytes!).

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4. Want to write multiple copies of a CD.
5. Expect read errors on the source CD (for example: scratches and dust on CD).
6. Want to copy mixed mode (a data track and one or more audio tracks) CDs. This is because some CD-ROM drives have a unholy tendency to "hang up" (that means they don't respond any longer to SCSI/DIE commands most likely crashing your computer) while reading blocks between the data and the audio track of a mixed mode CD. If this happens while an "On The Fly" copy takes place your destination CD will be crushed by a "Buffer Underrun".

Choose "On The Fly" copy if you:

1. Don't have much time.
2. Don't have enough free space on your hard disk (hint: 1 minute of audio takes about 10 MB and a CD image file may be several hundred MB long!).
3. Want to copy a CD-ROM (no audio tracks) and trust the error correction capabilities of your CD-ROM drive.
4. Want to copy mixed mode (a data track and one or more audio tracks) CDs and are pretty sure (by experience?) that your CD-ROM drive will read audio tracks perfectly and won't "hang up" (see above) between the data and audio track of a mixed mode CD.
5. Don't care if audio index positions get lost.
6. Have lots of empty CD recordables CD-R.
7. Nero versions 3.0 or higher are capable of burning "On The Fly" copies using a CD-ROM drive as input device. You don't need several hundred megabytes of free volume space on your hard disk any longer and will be able to copy CDs much faster. That's the good news.

Step by step instructions on "How to Copy a CD"

We will leave all the options with their default settings. For detailed information, please refer to the Nero-Burning ROM Reference Chapter in the manual. Follow the instructions carefully.

1. Click on the CD-Copy icon in the New Compilation dialog window, which opens after you start Nero. If you have already opened Nero, you can reach this dialog window through the icon for "New Compilation". On the property sheets, the Burn card is on the top.
2. Click on the property sheet Copy options to select the copy method you want.
3. Insert the original CD in your recorder or in your CD-ROM drive, depending on whether you have selected the copy "**On-The-Fly**" method or the "**Image-Copy**" method.
4. By clicking on the CD Copy button, the Write CD dialog box will open.

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5. Now you may confirm by clicking on the Copy CD button. All of the selected steps will now be carried out in sequence including the burn process. So that you can follow exactly what is happening, a status window is displayed in which the individual steps are listed.
6. As a last step, you will see a message like "burn process was successful with 2x(300 KB/s)".
7. Finally, the CD will be ejected.
8. You may now check to see for yourself what was written onto your new CD by re-inserting the CD and clicking on the CD info icon.

Important: If your audio CD contains crackling noises or sounds strangely distorted, you have most likely trouble with the so-called "Audio Jitter". These problems are case by hardware failures to read audio data correctly. Please refer to checking the audio features of your CD-ROM drive and CD ROM-Read speed settings

Saving Audio Tracks

The tracks on your audio CDs are in CDA format. You can save these tracks onto your system as WAV files. To do this, follow the instructions below:

1. Insert an audio CD into the CD Rewritable drive.
2. From the main Nero Burning Rom window, select "CD-Recorder" from the toolbar.
3. Select "Save Track..." from the drop down menu.
4. Use your mouse to select the audio tracks you want to convert to WAV format. (To select multiple tracks, hold the Ctrl button while selecting with the mouse).
5. Make sure you choose (browse) a path to where you want to save the tracks.
6. Press the "Save" button to begin saving the tracks to your hard drive.

TROUBLESHOOTING

To help you identify and resolve some problems you may encounter with Nero-Burning ROM, this chapter provides the following information.

- Suggestions for Resolving Common Problems
- Error Message Descriptions
- Other Program Messages
- Using the Online Help

Suggestions for Resolving Common Problems

The following section describes common problems you may encounter, along with some suggestions for resolving them. **You can find a detailed list of errors and additional updates from Nero's website at <http://www.nero.com>**

My CD-Rewritable Drive is not found by Windows 98/95/2000

If you are connecting the CD-ROM drive to the motherboard, read this:

Make sure that there are no conflicts, both Primary and Secondary IDE controllers are present and without yellow exclamation marks. To check the status of your IDE controllers, click on the Start button > Settings > Control Panel > System > Hardware(for Windows 2000) > Device Manager (under the Hard Disk Controllers category). Yellow exclamation marks on the IDE controllers mean that the device is not working properly, not install properly or have a resource conflict with another device. Some retail version of Windows 98/95 may not recognize some of the IDE controllers. This can result in IDE devices (such as CD-ROM drives) not being detected or disappearing from the PC.

There are several ways to correct the problems.

If the Primary or Secondary IDE controllers are not present, read this:

Your controllers are not set-up properly and you need to get a patch from your motherboard manufacture or check your BIOS set-up and make sure that both onboard IDE controllers are enable

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If the Primary and Secondary IDE controllers are present but they have yellow exclamation marks, read this:

The protected-mode driver for the hard disk controller was not properly initialised when you started Windows previously. When this occurs, a NOIDE entry is placed in the registry, preventing Windows from making future attempts to initialise the protected-mode driver. You might try to resolve the problem by editing your Registry.

WARNING: Using Registry Editor incorrectly can cause serious problems that may require you to reinstall Windows. We cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved.

"Use Registry Editor at your own risk."

NOTE: You should make a backup copy of the registry files (System.dat and User.dat) before you edit the registry.

Go to the Start button then Run and type **REGEDIT** Then go to the following directories to remove the NOIDE entry if it is listed. Once removed reboot system.

HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES\VXD\IOS

After you update the registry, restart Windows. Windows will then attempt to initialize the protected-mode driver for the controller. If no problems are encountered, the file system and virtual memory will operate in 32-bit mode, and Device Manager will not display an exclamation point in a yellow circle for the IDE channels. If the protected-mode driver is not initialized properly, an error message will be displayed and the NOIDE registry entry will be re-created. Windows will use the MS-DOS compatibility mode file system the next time you start the computer.

If the CD-ROM drive is connected to a sound card or controller card, read this:

Make sure the sound card or controller card are install properly, working properly and compatible with Windows 98/95. We do not recommend the use of a sound card with Our CD-Rewritable drive.

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Problems Reading Recordable CDs

If you have successfully written a CD but have problems reading it, there are a number of possible reasons:

- ◆ If the CD can be read on the CD recorder but not on a standard CD-ROM drive, check in Disc Info and Tools to make sure that the session containing the data you just wrote is closed. CD-ROM drives cannot read data from a session, which is not closed.
- ◆ If your CD is ejected, or you receive an error message, or you have random problems accessing files from the CD, the problem may be that your CD-ROM drive is not well calibrated to read recordable CDs or does not support CD-R / CD-RW media.
- ◆ If you recorded the CD using the DOS filenames option in the File Names tab, but there are nonetheless difficulties in reading back the CD on DOS or Windows® 3.1 system, it may be that you have an older version of MSCDEX (before version 2.23) on your system.

Problems Reading Multisession CDs

If you can see only data recorded in the first session on the CD but not in subsequent sessions, it may be that:

- You recorded the CD in CD-ROM (Mode 1) format, while your multisession CD-ROM drive only recognizes CD-ROM XA (Mode 2) multisession CDs. See the chapter on How to Make a Multisession CD.
- Or,
- Your CD-ROM drive does not support multisession at all.

If you can see only data recorded in the last session, you may have forgotten to link your new data with data previously recorded on the CD. Make sure to import the session before writing to the CD. See the online help for more details.

CD-ROM Drive Incompatibility with Recordable CDs

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Sometimes, it appears that you wrote a CD without trouble and can read it on your CD recorder. However, when you put it in a standard CD-ROM drive, the CD is ejected, or you get error messages such as **"No CD-ROM"** or **"Not ready reading"**, or you have random problems accessing some files or directories. You may find that the problems vanish completely when reading the CD on a different CD-ROM drive.

This maybe due to compatibility problems with some CD-ROM drives, especially older ones. Some CD-ROM drives' lasers are not calibrated to read recordable CDs, whose surface is different from that of factory-pressed CDs. If your CD-ROM drive reads mass-produced (silver) CDs but not recordable CDs, check with the CD-ROM drive manufacturer to determine whether this is the problem. In some cases, an upgrade is available which will resolve the problem.

The combination of CD brand and CD recorder can make a difference. Use only good quality CD-R or CD-RW media.

Which Nero Releases supports Windows 2000?

The first Nero release, which supports Windows 2000, is Nero 4.0.8.3. To find out what version of Nero you have, click on "Help" from the main Nero Burning Rom window and select "About Nero". You can update your version of Nero by going to www.nero.com

Does Nero cause a problem if I update from Windows NT to Windows 2000?

Yes, because the Nero driver for Windows NT does not work under Windows 2000. Please uninstall Nero before you upgrade to Windows 2000.

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Error Message Descriptions

The following is a list of error messages you may encounter, along with descriptions and suggestions for resolving them. See also the online help for a listing of additional error messages.

Buffer underrun at sector....

CD writing is a real-time process, which must run constantly at the selected recording speed, without interruptions. The CD recorder's buffer is constantly filled with a reserve of data waiting to be written so that small slowdowns or interruptions in the flow of data from the computer do not interrupt writing.

This message indicates that for some reason, the flow of data from hard disk to CD recorder was interrupted long enough for the CD recorder's buffer to be emptied, and writing was halted. If this occurs during an actual write operation rather than a test, your CD may be damaged.

To avoid buffer underruns, make sure that no screen savers or other Terminate and Stay Resident (TSR) utilities are active (they can momentarily interrupt operations) and that your working hard disk cannot be accessed via a network.

Also, the CD recorder's position in the IDE bus or the cable length between the computer and CD recorder may cause data slow-downs. Try connecting the CD recorder as the master on the IDE bus and, if possible, use a shorter IDE cable between the CD recorder and the host adapter.

The current CD already contains a closed audio session. If you continue you may have problems reading the last audio session on some CD audio players. Continue anyway?

Under the Red Book standard for audio CDs, all audio tracks must be written in a single session. If you add audio tracks in more than one session, playback results will be unpredictable. Most CD-ROM drives will play back all audio tracks on a CD even if they are recorded in several sessions. Most home and car CD players can only play the tracks in the first session.

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The current CD already contains tracks and or sessions that are incompatible with the requested operation.

This error appears if you are trying to add data in a different format to a CD that contains data, such as trying to add a CD-ROM XA session to a CD that contains a CD-ROM session. A CD containing both formats is unreadable, so you are not allowed to record the different session type.

The current CD contains a session that is not closed. Close the session before writing further data to the disc.

CD-ROM drives can only read back one data track per session, so avoid recording another data track in an open session.

The currently selected source CD-ROM drive or CD recorder cannot read audio in digital format.

Reading audio tracks in digital format is not the same as playing the music. Few CD-ROM drives can read audio tracks in digital format.

The destination CD is smaller than the source.

There is not enough room on the recordable CD to copy the source CD. Try recording to a blank CD. Use 74-minute media instead of 60-minute media. Some CDs cannot be copied due to the TOC overhead in CD recorders and also due to the calibration zone overhead. See PCA in Glossary.

Error reading the Table of Contents (TOC) or Program Memory Area (PMA) from the CD.

Do not try and write to this CD. It has serious problems, and may have been damaged during a previous write. If this is a CD-RW media, erase it and try again.

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MSCDEX Errors

Versions of MSCDEX prior to 2.23 had problems with filenames containing illegal characters. If a directory contains a filename with an illegal character, you can see all the files by doing a DIR from DOS and can open the illegally-named file; however, one or more files listed after the illegal one may not be accessible or may give errors.

The selected CD track is longer than the image file.

The verify fails immediately because the source ISO 9660 image and the ISO 9660 track on CD are not the same size.

The selected CD track is shorter than the image file.

The verify fails immediately because the source ISO 9660 image and the ISO 9660 track on CD are not the same size.

The selected disc image file was not prepared for the current CD. Write anyway? (This is not likely to produce a readable CD!)?

These errors occurs if you prepared the disc image file for a blank CD and are now trying to record it to a CD containing data, or vice-versa. In either case, you would write a CD that cannot be read at all because the CD addresses calculated for the disc image are wrong for this CD.

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Other Program Messages

The following is a list of other program messages you may encounter, along with their descriptions.

Adding files to CD image...

As part of the process of preparing to record, Nero-Burning ROM is creating a database of the files to be written to CD.

Fixing up...

The files in the Data Track list are checked on the hard disk for potential problems, such as hard disk corruption, and their length is computed in preparation for writing.

Generating ISO 9660 image file...

A disc image is being written to hard disk, because Write on-the-fly is deselected or Write disc image is selected in the General tab.

Initialising

The CD recorder's laser is calibrated and the CD is checked in preparation for writing. If there are no problems, writing begins immediately.

Loading files from previous track to make linked multisession....

This message appears when you choose to make a linked multisession CD. During this process, the ISO 9660 file system information is loaded from the track you chose in the Load Contents tab so that it can be linked with the new files to be recorded.

Mounting...

The ISO 9660 disc structure is prepared on hard disk. This generates a large temporary file in your set temporary directory.

Using the Online Help

You will find most of the information you need to use Nero-Burning ROM in the Manual folder within the Nero-Burning ROM CD. Also you can open the Nero-Burning ROM program and go to the **Help Topics** from the Help menu to get started. More information and help with Nero can be found at www.ahead.de.

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GLOSSARY

a-characters

Capital A to Z, digits 0 to 9, and the following symbols: (space)! % & ' (=*, -, ./:;<?>_

Access Time

The time it takes to retrieve a piece of information. With hard disks or CDs, maximum access time is measured as the time it takes to move from one end of the CD to the other, find a piece of information, and transfer that information to RAM.

ASPI

Advanced SCSI Programmer's Interface. A language the Easy-CD software uses to communicate through the SCSI host adapter with the CD recorder.

Authoring

Authoring is what you do to create an application before you are ready to write to CD. For example, if you wish to create a multimedia game or presentation, you will need authoring software that allows you to combine sound, graphics, and text into an application.

When you have finished creating your application with authoring software, you can use Easy-CD Pro 95 to write it to CD.

Barcode

A unique code for a compact disc. With recordable CDs, this number is often printed in the clear inner ring of the disc.

Blue Book

The Philips/Sony standard for CD Extra.

Buffer

An amount of memory, which temporarily stores data to help compensate for differences in the transfer rate of data from one device to another. For example, the CD recorder's buffer stores data as it arrives from your hard disk to help protect against buffer underruns when the flow of data from hard disk is slowed down or interrupted.

Buffer Underrun

This error occurs when the CD recorder's buffer is emptied during recording. It usually means a ruined CD.

Caddy

The plastic and metal carrier into which a CD must be inserted before it is loaded into some CD-ROM drives or CD recorders.

CD Plus (aka CD Extra or Enhanced CD-ROM)

A multisession disc containing one or more audio tracks in the first session, and one CD-ROM XA data track in the second session. Additional characteristics are defined in the Blue Book standard.

CD-DA

Compact Disc-Digital Audio. CD-DA discs are recorded according to the Red Book standard, which was developed by Philips and Sony.

In CD-DA, sound files are written at a frequency of 44.1 kHz and a sample size of 16 bits, and in stereo; this results in a storage size of approximately 10 MBytes of memory per minute of sound. CD-DA discs can be played back from a home or car CD player, or from a CD-ROM drive through speakers or headphones attached to the drive's output jack.

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A CD-DA disc may contain up to 99 tracks, each usually representing a separate piece of music.

CD-I

Compact Disc-Interactive, a CD format designed to allow interactive multimedia applications to be played through a small computer/disc player on a home television screen. This is especially good for real-time animation, video, and sound. The CD-I standard is the Green Book.

BURN-Proof™

(Buffer Under RuN-Proof) technology helps prevent bad burns and CD creation errors, including buffer underrun and track write errors. When the flow of data to your CD-Rewritable drive is interrupted long enough to empty the drive's buffer, BURN-Proof pauses the writing process to your CD-R or CD-RW disc. Because CD writing is a real-time process that must run without interruptions, the BURN-Proof feature actually turns off the laser when your CD-Rewritable drive's buffer empties. Once the buffer fills with data again, your CD-Rewritable drive will begin to burn where the writing process stopped.

CD-I Bridge

A set of specifications defining a way of recording CD-I information on a CD-ROM XA disc. Used for Photo CD and Video CD.

CD Project

A CD Project includes all the settings you have made for a writing session as well as the Data Track or Audio Tracks list. When you re-open the project, all the settings remain as before. This allows you to easily make another identical CD.

CD-R

Compact disc-recordable.

CD-ROM

Compact Disc-Read Only Memory. A standard for CDs used as a digital memory medium for personal computers. Jointly developed by Sony and Philips and launched in 1985, the specifications for CD-ROM were first defined in the Yellow Book.

CD-ROM Drive

A peripheral device attached to a computer for reading CD-ROM discs.

CD-ROM XA

XA stands for Extended Architecture. CD-ROM XA is an extension of the Yellow Book standard, generally consistent with the ISO 9660 logical format but designed to add better audio and video capabilities (taken from the CD-I standard) so that CD-ROM can more easily be used for multimedia applications. CD-ROM XA is the physical format for Photo CDs and can also be used for simple data storage.

CIRC

Cross-Interleaved Reed-Solomon Code. The first level of error correction used in every CD, and the only one used for audio CDs. It consists of two Reed-Solomon codes interleaved crosswise.

Close Disc

To close (or finalize) a recordable CD so that no further data can be written to it. This is done when the last session's lead-in is written, so a session must be closed in order to close the CD.

It is not necessary to close a CD to read it in a standard CD-ROM drive; however, you must close an audio CD to play it in a car or home CD player.

Close Session

When a session is closed, information about its contents is written into the CD's TOC, and a lead-in and lead-out are written to prepare the CD for a subsequent session. It is necessary to close a session

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in order to read its contents on a standard CD-ROM drive, or to play back an audio CD.

d-characters

Capital A to Z, digits 0 to 9, and the underscore symbol (_).

Disc-at-Once

A method of writing more than one track on a CD without turning off the recording laser between tracks, so that no run-in-run-out blocks are written. It is preferable to record in Disc-at-Once mode if you are making an audio CD to be replicated at a disc factory.

ECC

Error Correction Code. A system of scrambling data and recording redundant data onto CD as it is premastered. When the CD is read back, this redundant information helps to detect and correct errors that arise during data transmission.

EDC

Error Detection Code. There are 32 bits in each sector used to detect errors in the sector data.

File System

A data structure that translates the physical (sector) view of a CD into a logical structure (files and directories), so the application and users can easily locate files. See also Logical Format.

Gold Disc

The recordable CD used in CD-R systems. The blank CD is made of a layer of polycarbonate, stamped with a preformed track spiral, which the recording laser beam follows when writing information onto the CD. A translucent layer of

recordable material (green, yellow-green, or blue) is laid on top of the polycarbonate, followed by a reflective layer of gold or silver. Then a layer of lacquer and a label are applied.

Green Book

The Philips/Sony specification for CD-I.

Header

The 4-bytes recorded at the beginning of each sector, which tell the address of the sector (expressed as a Logical Block Number) and the mode in which the sector is recorded.

HFS

Hierarchical File System. The file system used by the Macintosh operating system to organize data on hard and floppy disks. Can also be used for CD-ROMs. This software does not support recording in the HFS format.

High Sierra Format

The standard logical format for CD-ROM originally proposed by the High Sierra Group, on which the ISO 9660 standard is based; essentially identical to ISO 9660, and now defunct as a separate standard.

Hybrid

A CD containing both DOS/Windows and Macintosh software. On a DOS/Windows platform, it is seen as a normal ISO 9660 CD, while on a Macintosh it appears as an HFS CD. This software does not support recording hybrid CDs.

Insert

To install a CDROM into the drive bay, so that the computer can recognize it and read data from it.

ISO 9660

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An international standard which specifies how data is arranged (its logical format) on a CD-ROM.

ISO 9660 Interchange Levels

There are three methods of recording and naming files on CD under the ISO 9660 standard. They are organized in three nested, downward-compatible Levels.

Level 1 (the most restrictive):

- Each file must be written on CD as a single, continuous stream of bytes -- files may not be fragmented or interleaved.
- A filename may not contain more than eight d-characters.
- A filename extension may not contain more than three d-characters.
- A directory name may not contain more than eight d-characters.

Level 2: Again, each file must be written on CD as a single, continuous stream of bytes.

Level 3: There are no restrictions.

ISO 9660 Image

Also known as an image, CD-ROM image, disc image, or real ISO image. A single large file which is an exact representation of the whole set of data and programs as it will appear on a CD, in terms of both content and logical format.

ISRC

International Standard Recording Code. The code consists of: Country Code (2 ASCII characters), Owner Code (3 ASCII characters), Year of Recording (2 digits), Serial Number (5 digits).

Joliet

A standard developed by Microsoft® for Windows 95 that allow CDs to be recorded using long filenames (it also allows for using the Unicode international character set). For files recorded to CD, Joliet allows you to use filenames up to 64 characters in length, including spaces. Joliet also records the associated

DOS-standard name (8 + 3 characters) for each file so that the CD may be read on DOS systems or earlier versions of Windows.

WARNING:

Versions of Windows NT™ up to 3.51, build 1057 do not read Joliet CDs. This should be corrected in a future version; contact Microsoft for information.

Lead-In

An area at the beginning of each session on a recordable CD which is left blank for the session's TOC. The lead-in is written when a session is closed, and takes up 4500 sectors on CD (= 1 minute, or roughly 9 MBytes). The lead-in also indicates whether the CD is multisession, and if the CD is not closed, the next writable address on the CD.

Lead-Out

The area at the end of a session which indicates that the end of the data has been reached; there is no data written in the lead-out. The first lead-out on a CD is 6750 sectors (= 1.5 minutes, about 13 MBytes) long; any subsequent lead-outs are 2250 sectors (= .5 minute, about 4 MBytes) long.

Linked Multisession

A CD containing more than one session. All of the data in the various sessions on CD can be seen as if it had all been recorded in one single, large session.

Logical Block

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The smallest addressable space on a CD. Each logical block is identified by a unique Logical Block Number (LBN), assigned in order starting from 0 at the beginning of the CD. Under the ISO 9660 standard, all data on a CD is addressed in terms of LBNs. At present, CD recording is supported at one logical block per logical sector.

Logical Format

A logical file format, such as ISO 9660 translates the sector-by-

sector view of a CD into a virtual tree of directories and files. This makes it easier for applications and users to use the information on the CD.

Mastering

The process of creating a glass master from which CDs are reproduced in quantity. Data is read from a tape or recordable CD to a powerful modulated laser beam that engraves the corresponding pits into a photoresistant surface. In desktop recordable CD systems, mastering is done together with premastering by the desktop CD recorder. The term mastering is used to mean recording in general.

Mixed-Mode Disc

A CD including both data and audio tracks. The data is written in CD-ROM or CD-ROM XA format in the first track of the CD, and the audio in CD-DA format in one or more following tracks.

Mode

There are two recording modes for CDs. In Mode 1, used with CD-ROM, 288 bytes of each sector are used for storing error correction code, and the remaining 2048 bytes per sector are available for user data. Mode 2, used in CD-I and CD-ROM XA, has two forms: Form 1 is similar to Mode 1, as it is also used to record data

that requires error correction; Form 2 is used for recording information such as sound or images which do not require such extreme precision. Since less error correction is needed, more bytes in the sector can be freed for information storage, resulting in a user data area of 2336 bytes per sector.

MSCDEX

Microsoft DOS extensions for CD-ROM. Allows the DOS operating system to recognize a CD-ROM as a DOS volume.

Multisession

A CD to which data is added incrementally in more than one recording session. If data is linked between session, all data on a multisession CD, when read on a multisession CD-ROM drive, may be seen as part of a single, logical structure.

On-the-Fly

Writing data directly from the source files to CD without first writing a real ISO 9660 disc image.

Orange Book

The Philips/Sony specification for Compact Disc Magneto-Optical (CD-MO) and Compact Disc Write-Once (CD-WO) systems. It is the standard by which recordable CDs are recorded.

Packet Writing

A method of CD recording in which data can be written in much smaller chunks than are possible with the current Disc-at-Once and Track-at-Once methods. Not currently supported by most CD recorders or operating systems, and not possible with Easy-CD Pro 95. Contact Adaptec for information about new software we will be releasing to support packet writing.

PCA

Power Calibration Area. A space reserved at the beginning of a recordable CD for

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calibrating the recorder's laser for that particular CD.

Photo CD

A CD format based on the CD-ROM XA and Orange Book specifications. It is used to store photographic images for display and printing.

PMA

Program Memory Area. On a recordable CD, an area which temporarily contains track numbers and their starting and stopping points (that is, the session TOC) when tracks are written in a session which is not yet closed. When the session is closed, this same TOC information is written in the session lead-in.

Pre-Gap

A space dividing tracks, recorded before the track data area. The length of the pre-gap varies with the CD recorder, the types of tracks being recorded, and whether recording is done in Track-at-Once or Disc-at-Once mode.

Gaps in Track-at-Once recording:

The pre-gap length varies depending on the types of tracks being separated and the CD recorder used:

Track Types	Gap
CD-ROM	
followed by...	
Audio	2 or 3 seconds
CD-ROM	2 seconds
CD-ROM XA	3 seconds
CD-ROM XA	
followed by...	
Audio	2 or 3 seconds

CD-ROM 3 seconds

CD-ROM XA 2 seconds

Audio

Followed by...

Audio 2 seconds

CD-ROM 3 seconds

CD-ROM XA 3 seconds

*According to the standard, the gap between a data track and an audio track should always be 2 seconds, but some recorders automatically write a 3-second gap.

Gaps in Disc-at-Once recording:

Note: Not all CD recorders support Disc-at-Once recording:

Track Types	Gap
CD-ROM	
Followed by...	
Audio	2 seconds
CD-ROM	2 seconds
CD-ROM XA	3 seconds
CD-ROM XA	
Followed by...	
Audio	2 seconds
CD-ROM	3 seconds
CD-ROM XA	2 seconds
Audio	
Followed by...	
Audio	0 seconds
CD-ROM	3 seconds

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CD-ROM XA 3 seconds

Premastering

The process of preparing data to be mastered onto a CD. It includes breaking the data into logical blocks and recording those blocks with the appropriate header (address) and error correction information. With recordable CD systems, premastering and mastering are done in one operation, resulting in a ready-to-read CD.

Recordable Disc

See Gold Disc.

Red Book

The Philips/Sony specification for audio (CD-DA) compact discs.

Replication

Also known as duplication. The factory process of making multiple copies of a CD by injection-molding.

Romeo

An option in Easy-CD Pro 95 which allows you to write files to CD with names up to 128 characters long, including spaces. This is not part of the Joliet standard, the Unicode character set is not supported, and there is no provision for associated DOS filenames. Romeo filenames can be read on Windows 95 and

Windows NT systems. Romeo CDs can be read on Macintosh systems if the filenames are no longer than 31 characters.

Do not use Romeo if your CD must be read in other conditions.

Run-In/Run-Out Blocks

Whenever the recording laser is turned off after writing, two run-out blocks are written. When it is turned back on again, one link block and four run-in blocks are written.

SCSI

Small Computer System Interface (pronounced "scuzzy"). An interface which allows up to seven peripheral devices to be linked to a single controller. All CD recorders are connected via a SCSI host adapter card.

Sector

The smallest recordable unit on a CD. A disc can contain [(75 sectors per second) x (60 seconds per minute) x (number of minutes on CD)] sectors. The amount of data contained in the sector depends on what physical format and mode it is recorded in; for regular CD-ROM (Mode 1) data, you can fit 2048 bytes (2 KBytes) of data into a sector.

Session

A recorded area of a CD containing one or more tracks of any type (data or audio).

Table of Contents (Disc)

Shows the number of tracks recorded on CD, their starting locations, and the total length of the data area of the CD.

Track

Every time you write to CD, you create at least one track. Any session may contain one or more tracks, and the tracks within a session may be of the same or of different types (for example, a Mixed-Mode CD contains data and audio tracks).

Track-at-Once

A method of CD writing in which the recording laser is turned off after each track is written, and on again when a new track is written. This means that run-in/run-out blocks are written between tracks.

UPC

16x10x40 CD ReWritable User's Guide

Universal Product Code. A 13-digit UPC catalog number for the entire CD, which may be written in the CD's TOC. Also known as EAN.

Video CD

A reproduction system to present full motion pictures with associated audio using the CD format. Video and sound are compressed together using the MPEG 1 standard, and recorded onto a CD Bridge disc.

A Video CD contains one data track recorded in CD-ROM XA Mode 2, Form 2. It is always the first track on the CD (Track 1). The ISO 9660 file structure and a CD-I application program are recorded in this track, as well as the Video CD Information Area which gives general information about the Video CD.

After the data track, video is written in one or more subsequent tracks within the same session. These tracks are also recorded in Mode 2, Form 2. The session is closed after all tracks have been written.

Volume

Under the ISO 9660 standard, a single CD-ROM disc.

Volume Descriptors

In ISO 9660, a set of information on the CD containing information about the CD and how the computer should read it.

Wave Files

Wave is a standard DOS/Windows format for audio files. Wave files can be recorded at different rates, but if they are recorded at 44.1 MHz, 16-bits, and stereo, they are essentially identical to the music CDs that you buy.

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